

What is claimed is:

1. A metallic material for an electronic component,  
said metallic material consisting of an alloy including  
mainly Cu and having a composition of Mo in an amount  
5 of 0.1 to 3.0% by weight, a plurality of elements selected  
from a group consisting of Al, Au, Ag, Ti, Ni Co and  
Si in a total amount of 0.1 to 3.0% by weight and Cu  
as a remaining content.

2. A metallic material for an electronic component,  
10 said metallic material consisting of a binary alloy  
including mainly Cu and Mo in an amount of 0.1 to 3.0%  
by weight.

3. A metallic material for electronic components,  
said metallic material consisting of an alloy including  
15 mainly Cu and having a composition of one or a plurality  
of elements selected from the group consisting of Cr,  
Ta, W and Ti in a total amount of 0.1 to 3.0% by weight,  
one or a plurality of elements selected from a group  
consisting of Al, Au, Ag, Ti, Ni Co and Si in a total  
20 amount of 0.1 to 3.0% by weight and Cu as a remaining  
content.

4. The metallic material for an electronic component  
according to one of claims 1 to 3, said metallic material  
having electrical resistance lower than  $10 \mu \Omega \text{ cm}$ .

25 5. A metallic material for an electronic component,

said metallic material consisting of a ternary alloy including mainly of Cu, Mo in an amount of 0.1 to 3.0% by weight and one element selected from a group consisting of Al, Au, Ag, Ti, Ni, Co and Si in an amount  
5 of 0.1 to 3.0% by weight.

6. The metallic material for an electronic component according to claim 5, said metallic material having electrical resistance higher than  $1.5 \mu \Omega \text{ cm}$  and lower than  $7.0 \mu \Omega \text{ cm}$ .

10 7. The metallic material for an electronic component according to one of claim 1, claim 2, claim 3 and claim 5, said metallic material being used as a material for any one of a wiring pattern, an electrode, a contact and a target for a sputtering process.

15 8. An electronic component having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0% by weight, one or a plurality of elements  
20 selected from a group consisting of Al, Au, Ag, Ti, Ni, Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.

9. An electronic component having a wiring pattern, an electrode or a contact using a metallic material,  
25 said metallic material consisting of a binary alloy

including mainly Cu and Mo in an amount of 0.1 to 3.0% by weight.

10. An electronic component having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of an alloy including  
5 mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group  
10 consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.

11. The electronic component according to one of claims 8 to 10, said electrical component having a wiring  
15 pattern, an electrode or a contact which are formed by an etching process using a solution including phosphoric acid and nitric acid.

12. The electronic component according to one of claims 8 to 10, said electronic component having a wiring  
20 pattern, an electrode or a contact which are formed by an etching process under a gas atmosphere including chlorine.

13. The electronic component according to one of claims 8 to 10, said electronic component having region  
25 other than a wiring pattern, an electrode and a contact

are formed by an etching process under a gas atmosphere including fluorine.

14. The electronic component according to one of claims 8 to 10, said electronic component having a wiring pattern, an electrode or a contact which are formed by a heat treatment in the range of the temperatures from 100 °C to 750 °C.

15. The electronic component according to one of claims 8 to 10, said electronic components having a wiring pattern, an electrode or a contact which are formed on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride.

16. The electronic component according to one of claims 8 to 10, said electronic component having a wiring pattern, an electrode or a contact which are directly formed on a substrate made of one of glass or plastic resin.

17. An electronic device having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight

and Cu as a remaining content.

18. An electronic device having a wiring pattern,  
an electrode or a contact using a metallic material,  
said metallic material consisting of a binary alloy  
5 including mainly Cu and Mo in an amount of 0.1 to 3.0 %  
by weight.

19. An electronic device having a wiring pattern,  
an electrode or a contact using a metallic material,  
said metallic material consisting of an alloy including  
10 mainly Cu and having a composition of one or a plurality  
of elements selected from a group consisting of Cr, Ta,  
W and Ti in a total amount of 0.1 to 3.0% by weight,  
one or a plurality of elements selected from a group  
consisting of Al, Au, Ag, Ti, Ni Co and Si in a total  
15 amount of 0.1 to 3.0% by weight and Cu as a remaining  
content.

20. The electronic device according to one of claims  
17 to 19, said electronic device having a wiring pattern,  
an electrode or a contact which are formed by an etching  
20 process using a solution including phosphoric acid and  
nitric acid.

21. The electronic device according to one of claims  
17 to 19, said electronic device having a wiring pattern,  
an electrode or a contact which are formed by an etching  
25 process under a gas atmosphere including chlorine.

22. The electronic device according to one of claims 17 to 19, said electronic device having region other than a wiring pattern, an electrode and a contact, are formed by an etching process under a gas atmosphere including fluorine.

23. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed by a heat treatment in the range of the temperatures from 100 °C to 750 °C.

24. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride.

25. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are directly formed on a substrate made of one of glass or plastic resin.

26. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni

Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched by using a solution including phosphoric acid and nitric acid to form a wiring pattern, an electrode or a contact.

5        27. A working method of a metallic material, in which a metallic film consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is etched by using a solution including phosphoric acid and nitric acid to form a wiring pattern,  
10       an electrode or a contact.

28. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu having a composition of one or a plurality of elements selected from a group consisting of Cr, Ta,  
15       W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched by using a solution including  
20       phosphoric acid and nitric acid to form a wiring pattern, an electrode or a contact.

29. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu and having a composition of Mo in an amount  
25       of 0.1 to 3.0 % by weight, one or a plurality of elements

selected from a group consisting of Al, Au, Ag, Ti, Ni  
Co and Si in a total amount of 0.1 to 3.0% by weight  
and Cu as a remaining content is etched under a gas  
atmosphere including hydrochloric acid to form a wiring  
5 pattern, an electrode or a contact.

30. A working method of a metallic material, in  
which a metallic film consisting of a binary alloy  
including mainly of Cu and Mo in an amount of 0.1 to  
3.0 % by weight is etched under a gas atmosphere including  
10 hydrochloric acid to form a wiring pattern, an electrode  
or a contact.

31. A working method of a metallic material, in  
which a metallic film consisting of an alloy including  
mainly Cu and having a composition of one or a plurality  
15 of elements selected from a group consisting of Cr, Ta,  
W and Ti in a total amount of 0.1 to 3.0% by weight,  
one or a plurality of elements selected from a group  
consisting of Al, Au, Ag, Ti, Ni Co and Si in a total  
amount of 0.1 to 3.0% by weight and Cu as a remaining  
20 content is etched under a gas atmosphere including  
hydrochloric acid to form a wiring pattern, an electrode  
or a contact.

32. A manufacturing method of electronic component,  
in which a metallic film is consisted of an alloy  
25 including mainly Cu and having a composition of Mo in



an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content, and a film other than said metallic film is worked by an etching process under a gas atmosphere including fluorine.

33. A manufacturing method of an electronic component, in which a metallic film is consisted of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight, and a film other than said metallic film is worked by an etching process under a gas atmosphere including fluorine.

34. A manufacturing method of an electronic component, in which a metallic film is consisted of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content, and a film other than said metallic film is worked by an etching process under a gas atmosphere including fluorine.

35. A working method of a metallic material, in which a metallic film formed by said metallic material

consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total  
5 amount of 0.1 to 3.0% by weight and Cu as a remaining content is subjected to a heat treatment in the range of temperatures to 100 °C to 750 °C to form a wiring pattern, an electrode or a contact.

36. A working method of a metallic material, in  
10 which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is subjected to a heat treatment in a range of temperatures to 100 °C to 750 °C to form a wiring pattern, an electrode or a  
15 contact.

37. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected  
20 from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is subjected  
25 to a heat treatment in a range of temperatures to 100 °C

to 750 °C to form a wiring pattern, an electrode or a contact.

38. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride to form a wiring pattern, an electrode or a contact.

39. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride to form a wiring pattern, an electrode or a contact.

40. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected

from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weigh, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0%  
5 by weight and Cu as a remaining content is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride to form a wiring pattern, an electrode or a contact.

10 41. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group  
15 consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is directly deposited on a substrate made of glass or resin such as plastic to form a wiring pattern, an electrode or a contact.

20 42. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is directly deposited on a substrate made of glass or resin such  
25 as plastic to form a wiring pattern, an electrode or

a contact.

43. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having  
5 a composition of one or a plurality of elements selected from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0%  
10 by weight and Cu as a remaining content is directly deposited on a substrate made of glass or resin such as plastic to form a wiring pattern, an electrode or a contact.

44. An electronic optical component having  
15 reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of an alloy including mainly Cu and having a content of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni, Co and Si in a total amount of 0.1 to 3.0%  
20 by weight and Cu as a remaining content.

45. An electronic optical component having reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of a binary  
25 alloy including mainly Cu and Mo in an amount of 0.1

to 3.0 % by weight.

46. An electronic optical component having reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.